

U.S. NAVY MEDICINE

July-August 1984



USS *Comfort*:
Reminiscences of her
WWII Skipper

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U.S. NAVY MEDICINE is published from appropriated funds by authority of Department of the Navy, Naval Medical Command, in accordance with Navy Publications and Printing Regulations P-35. Second class postage paid at Philadelphia, PA, and additional mailing offices. ISSN 0364-6807. Articles, letters, and address changes may be forwarded to the Editor *U.S. Navy Medicine*, Department of the Navy, Naval Medical Command (MEDCOM 00D4), Washington, DC 20372. Telephone (Area Code 202) 653-1237, 653-1297; Autovon 294-1237, 294-1297. Contributions from the field are welcome and will be published as space permits, subject to editing and possible abridgment.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

NAVMED P-5088

POSTMASTER: Send change of address orders to U.S. Naval Publications and Forms Center, ATTN: Code 306, 5801 Tabor Avenue, Philadelphia, PA 19120.

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COVER: CDR Harold F. Fultz accepts command of USS *Comfort* at the vessel's commissioning on 5 May 1944. Story on page 9. Photo courtesy of Mrs. Charlotte D. Fultz.

Salute to a Corps

Several days ago I had the opportunity and privilege to attend a birthday party celebrating the 37th anniversary of the Medical Service Corps. In my brief remarks during the ceremony I made the observation that those who authorized the establishment of this—at that time—badly needed adjunct to our health care system could never have conceived its change and development, matching as it has, the changes in our health care system both military and civilian. They were envisioned as a complement—and indeed they were—to our physicians and dentists.

But, today they are something more. Over the years our Medical Service Corps officers have rightfully earned the status of full partners in our system. Medicine and medical care, in all of its aspects, have changed drastically. Entire scientific disciplines have come into being. Therapeutic modalities not even dreamt of in 1947 have

become commonplace. Diagnostic technology has exploded. Just as significantly, management technology and management requirements, both internally and externally generated, have risen exponentially in response to resource competition, consumer expectations, accrediting agencies and a host of others. In each instance our Medical Service Corps has provided that type of specialist to meet the need and has done it to a level of professionalism guaranteeing that Navy medicine can meet its responsibilities.

The future is no less challenging than the past. But, of one thing I am certain. This outstanding group of men and women will meet it, insuring that our team is complete in every respect. They will truly be our partners in professionalism. Happy Birthday!

W. M. McDermott Jr.
William M. McDermott Jr.
RADM, MC, USN



Independent Duty Corpsman Began in the Army

HM1 Dennis Hampton is "Doc" to more than 300 sailors aboard the Seventh Fleet destroyer USS *Harry W. Hill* (DD-986).

The 38-year-old California native belongs to a select group of enlisted Navymen who function as doctors in areas where Navy doctors are unavailable. His medical credentials include 10 years as a U.S. Army operating room technician and 5 years as a Navy hospital corpsman.

Hampton is now an independent duty corpsman trained to function in every environment. He can handle most emergencies, but his primary job is to maintain life until a patient can be medically evacuated to a more definitive care facility. According to Hampton, the Army has no counterpart. "The closest thing they have is a special forces medic, they're not trained to function in a clinical environment."

Most of Hampton's medical duties are more routine, however. The majority of sailors who come to him for treatment are suffering from athlete's foot, colds, strep throat, fevers, or infections. Occasionally he treats dislocations and fractures and every so often a case of hepatitis or tuberculosis.

"Mostly you get a lot of lonely kids," says Hampton. "That loneliness is manifested in various ways. The ship is a microcosm of any community. It's a

large number of men jammed into a relatively small space." When Hampton describes his job as "highly stressful and emotional" he is not complaining, just stating the truth. "Being responsible for the health and welfare of more than 300 people is frightening at times but also exhilarating," he adds.

There is little privacy for the man they call "Doc." When the ship is underway, miles from port, he hears all manner of gripes and grievances. "We have a lot of imaginary emergencies," says Hampton. "But to them it's a real emergency. What may not be pain to you is excruciating to me and vice versa. But I'll see emergencies 24 hours a day. I tell them that."

"Like any other job, you have your up and down moments, but the rewards are great. You're able to help people physically and mentally. You're a counselor at times and father confessor at other times."

Luckily, Hampton has a third class petty officer to assist him with the routine influx of patients. There is always a mountain of paperwork to tackle whenever that sick call line subsides. "A big percentage of my job is administrative," says Hampton.

The range of knowledge that Hampton's training represents is immense. On an aircraft carrier there may be 20 or 30 hospital corpsmen. Although

many are general duty corpsmen, the remainder are pharmacologists, lab and X-ray technicians, or supply petty officers. On a destroyer, like *Harry W. Hill*, Hampton and his assistant absorb those responsibilities and additional ones, including dental emergencies. They also make time for sanitation inspections, pest control, hearing conservation programs, potable water testing, immunizations, supply procedures, sewage disposal surveillance, asbestos surveys, and treatment of nuclear, biological, and chemical casualties in the event of war.

"What I don't have in my head I've been trained to know where to find," Hampton points out. "It's in my books."

Hampton was drafted into the Army in 1966 while waiting for a position to open up in the Navy or Air Force. "I knew what I was going to be," Hampton recalls, "an infantryman." He served two tours in Korea and one in Japan, and it was during a tour in Korea that he first had a chance to become an operating room technician. In addition to assisting in surgical procedures, he was responsible for "the protection of patients against contamination." But in 1977, after becoming a first sergeant in the Army, Hampton grew restless.

He left the Army and returned to California, where he made and sold



USS Harry W. Hill



HMI Hampton combined the name of a popular television show, the ship's hull number, and the Navy's love of acronyms into a sign for his office door. M.U.S.H. stands for Mobile Underway Support Hospital.

redwood tables and clocks. Three years passed in which he barely left his forest home to go into town. But tourism slumped, sales suffered, and by this time he had a family of five to provide for.

"I missed the military and working in medicine so I joined the Navy," Hampton recalls. But his decision had its price; he had to join as a seaman, with the stipulation that he would be advanced to second class petty officer upon completion of basic hospital corpsman school.

Today, 5 years later, Hampton is a first class petty officer and is now eligible for selection as chief petty officer. He has served as senior instructor at the Naval School of Health Sciences in San Diego and recently joined the ranks of 105 other outstanding sailors

who received special recognition from the Greater San Diego Chamber of Commerce for service to the Navy and their command in 1983. In addition to attending a luncheon, Hampton received a plaque, letter of appreciation, and a \$1,000 scholarship to National University in San Diego.

But money, recognition, and all the other benefits pale next to the satisfaction of being an independent duty corpsman on a Seventh Fleet destroyer. "If a member of the crew has a problem, they'll usually see me before they see anyone else on the ship," he says. "Doc—it sure sounded funny when they started calling me that. But you don't get that title right off the bat. If they don't like you they'll just call you petty officer." □

—Story and photo by JO1 Glenn Jochum

Rabies Control and Prevention at Subic Bay Naval Facility

LCDR Mark L. Dembert, MC, USN
LCDR David D. Granger, MC, USN

CAPT Wade B. Lawrence, VC, USA
LT Roy D. Sanderson, MSC, USNR

LCDR Winkler G. Weinberg, MC, USN

Rabies is a highly endemic viral disease in the Philippines. The country has one of the highest incidence rates of human rabies in the world (1.0/100,000 persons) with approximately 250 rabies deaths per year. Between 100,000 and 150,000 partial or complete series of rabies prophylaxis immunizations are given annually.(3)

Dogs are the principal vectors for transmission of rabies to humans in the Philippines. Large dog populations exist outside the naval facility at Subic Bay and nearby installations (San Miguel and Capas Tarlac) and thus represent a significant health threat to visiting fleet personnel and to the approximately 10,000 U.S. military and civilian personnel and their families stationed at these locations. Although many of these dogs are owned by residents of adjacent communities, they are permitted to roam freely. A significant rabies threat also exists among other wild animals (e.g., monkeys, cats) which are found on and off base.

Dr. Dembert is an epidemiologist at U.S. Naval Hospital, Subic Bay, Republic of the Philippines. Dr. Lawrence is assigned to the Veterinary Department, Dr. Weinberg is assigned to the Internal Medicine Department, Dr. Granger is on the staff of the Pediatrics Department, and LT Sanderson is assigned to the Occupational and Preventive Medicine Department at the same facility.

Humans can become infected with rabies virus by a bite or scratch which results in an open wound. Virus can also be transmitted when virus-laden saliva comes into contact with mucous membranes, for example, the eyes or mouth.(2) Over 300 cases of potential rabies exposure occur annually among U.S. military and Government-associated personnel and their families at and near Subic Bay. Therefore, the naval hospital has an active rabies control program coordinated by the hospital-based Rabies Control Board and the Veterinary Department, comprised of the U.S. Army-Philippines Veterinary Detachment.

Rabies Control Board and Veterinary Department

The Rabies Control Board consists of five members. The senior member is the hospital preventive medicine physician/epidemiologist. Other members are appointed separately from the Internal Medicine, Pediatrics, and Veterinary Departments, and from the Environmental Health Division of the Occupational and Preventive Medicine Department. Any staff physician or other health care provider who has a patient undergoing rabies prophylaxis is considered an "ad hoc" member. The board meets formally at least quarterly to evaluate all potential exposures for the preceding period, including what action was taken (post-

exposure prophylaxis advised?), the treatment rendered, and the occurrence of any adverse reactions to the vaccine. For every potential exposure, at least one member of the board becomes involved.

The Veterinary Department of the U.S. Naval Hospital, Subic Bay plans several important roles in rabies prevention. All pets of military owners are registered with the department within 10 days of arrival in the Philippines. Current vaccination against rabies is insured, and a local rabies vaccination tag and certificate are issued. Vaccination is repeated at yearly intervals. Although the Olongapo City Health Department has established rabies immunization requirements for dogs owned by its citizens, voluntary compliance is low. Therefore, the Veterinary Department assists the Health Department in conducting periodic rabies vaccination clinics for off-base pets.

Management of Potential Rabies Exposures

When a person is potentially exposed to rabies by a bite, scratch, or saliva from an animal attack on or off base, he or she is brought to the hospital emergency room or to the nearest branch clinic. Debridement and wound care, with tetanus prophylaxis, are instituted where applicable. If the animal is felt to be at high risk for

transmitting rabies (e.g., free-roaming animal, unprovoked attack on or off base), the Veterinary Department is contacted *immediately*. The veterinarian or veterinary animal technician interviews the patient, and an attempt is made to locate the offending animal. If the animal is located, a decision is made as to whether to quarantine the animal at home or at a base facility. However, if the risk seems low (e.g., provoked attack from an on-base vaccinated pet), the Veterinary Department is notified by the next working day.

Naval hospital veterinary personnel actively attempt to locate and examine all animals suspected of potential transmission of rabies in cases involving U.S. military personnel, their dependents, U.S. government employees, or Filipino employees working on base when attacked. During 1982, 310 such animals were located and examined. Approximately 90 percent were dogs; the remaining 10 percent were cats or monkeys. Two-thirds of the potential exposure cases occurred off base. Although U.S. military veterinary personnel have no jurisdiction over animals belonging to Filipino citizens off base, close cooperation with local Olongapo City Health Department officials and education programs for local populations as to the seriousness of rabies have facilitated control operations and quarantine procedures off base.

Following an initial examination by the veterinarian or veterinary technician, offending animals are either placed in a 10-day home quarantine or observed at the base impoundment facility. Home quarantine entails an obligation by the owner to maintain control of the animal and to report immediately to the Veterinary Department any unusual or suspicious behavior which may signal the onset of clinical rabies. At the end of the 10-day

period the animal is re-examined by veterinary personnel. If it is found to be in good health and exhibiting no abnormal behavior, it is removed from quarantine. If the animal dies or shows behavior consistent with rabies during the 10 days, it is sacrificed and the head is immediately shipped to CONUS for laboratory testing for rabies. A physician member of the board is contacted and the patient begins the post-exposure prophylaxis series. Completion of the series depends upon the laboratory report. In those cases where a suspect stray or wild animal is captured, the animal is humanely destroyed and the head is quickly shipped to CONUS for testing. Finally, it is usually impossible to determine the owner and whereabouts of free-roaming animals implicated in attacks. Thus, the usual procedure is to assume the worst and immunize the patient as if an actual exposure to rabies has occurred.

A new Army form, Report of Animal Bite—Potential Rabies Exposure, DA Form 5215-R (Test), May 1983, is used for reporting all cases of potential exposure. [Authors' note: This form is currently used on an optional basis and is not mandated for Navy and Marine Corps medical facilities. A modified version of this form is now being considered for Department of Defense standardization.] It has sections on patient identification, animal exposure history, management of the patient and the animal, and Rabies Control Board review and recommendations. Three copies are completed for every patient and are entered into the patient health record, the Veterinary Department files, and the Rabies Control Board files. Relevant information from each case is entered into a computerized registry. Patterns or trends in exposure and immunization are obtained from quarterly statistical analysis, and these

results are used to plan ongoing educational and public relations programs.

If rabies prophylaxis is necessary, Human Rabies Immune Globulin (HRIG) and Human Diploid Cell Vaccine are administered in accordance with the most current guidelines from the Centers for Disease Control.⁽¹⁾ Each patient undergoing post-exposure prophylaxis is followed by an attending health care provider. Additionally, all information on the prophylaxis series, including adverse reactions, is kept in triplicate on a local naval hospital form, the Rabies Post-Exposure Prophylaxis Record. When prophylaxis is completed the original copy of the form remains in the health record, while carbon copies are entered into the emergency room files and the Rabies Control Board files. Finally, close liaison is maintained with ship medical departments to insure documented followup on patients who go back to a ship and have their immunizations completed at sea.

The Rabies Control Board and Veterinary Department play important roles in their rabies prevention and control efforts. Of 47 persons who underwent rabies post-exposure prophylaxis immunizations in 1982, 20 were for bites or scratches for which the offending animal could not be found. In the other 27 cases rabies was confirmed in the offending animal. To date, no cases of human rabies have occurred among military personnel or their families stationed at Subic Bay.

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What's a Namrid?

CDR Michael E. Kilpatrick, MC, USN
CDR Amadeo Barzotti-Townsend, MC, PN

In January 1983 the U.S. Navy opened its first fixed, stand-alone research facility in South America. Known as the Naval Medical Research Institute Detachment (NAMRID), Lima, Peru, it is a component of the Naval Medical Research Institute, Bethesda, MD, and functions under the auspices of the Naval Medical Research and Development Command (NMRDC). NAMRID will conduct research to assess the threats posed to military personnel and the civilian population by prevalent infectious diseases in Peru.

NAMRID is the latest addition to NMRDC's contingent of overseas infectious diseases laboratories. The others are Naval Medical Research Unit No. 3 (NAMRU-3) in Cairo, Egypt, which opened in 1946; NAMRU-2, which moved to Manila, the Philippines in 1979 after 26 years in Taiwan; and the NAMRU-2 Detachment located in Jakarta, Indonesia, which began operations in 1970. NMRDC also coordinates research efforts at seven stateside installations. Interlaboratory collaboration between these facilities greatly enhances their productivity.

The arrival in Lima of NAMRID personnel—Officer in Charge CDR M.E. Kilpatrick, MC, Administrative Officer LT C.T. Dudley, MSC, and laboratory personnel, HMC H.D. Adkins and HMC C.A. Adkins—marked the successful completion of

an effort which was begun in October 1978 by RADM R. Dileo-Paoli, MC, PN (Ret.), then Surgeon General (Sanidad) of the Peruvian Navy. The negotiations connected with the establishment of NAMRID involved two heads of NMRDC (CAPT J.D. Bloom, MC (Ret.) and CAPT J.F. Kelly, DC); three U.S. Navy Surgeons General (VADM W.P. Arentzen, MC (Ret.), VADM J.W. Cox, MC (Ret.), and VADM L.H. Seaton, MC); and four Peruvian Surgeons General (RADM R. Dileo-Paoli, MC, PN (Ret.), RADM L. Caballero-Reyes, MC, PN (Ret.), RADM D. Loayza-Garcia, MC, PN (Ret.), and RADM J. Teneorio-De la Fuente, MC, PN). LCDR J. Escamilla, MSC, arrived in Lima in June 1983 to fill the last of five billets assigned to NAMRID.

NAMRID operates two laboratories. One, designated the Lima laboratory, is actually located in the Bellavista district of Callao, the port city of Lima. The second laboratory is in Iquitos. The Lima laboratory is housed in the major Peruvian Navy hospital, Centro Medico Naval, built in 1956 from the plans of the Naval Hospital in Beaufort, SC. Centro Medico's first director was CAPT H.C. Oard, MC; the facility is currently headed by RADM R. Romero-Torres, MC, PN. The Iquitos laboratory will be at the Peruvian Navy hospital, built in 1976 along the banks of the Amazon River. Located near the Peruvian naval base on the Nanay River, the Iquitos facility will also have temporary living quarters for personnel working there.

Coordination and assistance for the tropical medicine research to be con-

ducted at NAMRID will be provided by the Department of Investigations, a division of Sanidad, which will function as the Peruvian counterpart of NMRDC. The Department of Investigations is headed by CDR A. Barzotti-Townsend, MC, PN.

Initially, research will focus on bacterial and parasitic diseases in the Amazon basin and in the Lima area. As the laboratory facilities become more sophisticated and viral culturing capability is established, investigations will be expanded to include the identification and clarification of the various viral diseases, particularly the viral hemorrhagic fevers present in the Amazon basin.

At the outset, research efforts will be devoted to collection of blood, stool, and urine specimens from large numbers of people living in the Amazon basin. These samples will be evaluated for evidence of past as well as present infections caused by various



Dr. Kilpatrick is officer in charge of the Naval Medical Research Institute Detachment, Lima. Dr. Barzotti-Townsend is head, Department of Investigations, Office of the Surgeon General, Peruvian Navy.



Left: Peruvian Navy hospital. Below: The Peruvian Navy's Chief of Naval Operations (left) and RADM Milnes congratulate each other at the groundbreaking ceremony in Lima.



viral, bacterial, or parasitic diseases known or suspected to be present in this region.

The Iquitos laboratory will be the starting point for field trips into the tributaries of the Amazon. These trips will be undertaken in conjunction with the Peruvian Ministry of Health Civic Action Medical Program, which uses small Peruvian naval ships to deliver medical care to people along the tributary rivers of the Amazon. NAMRID personnel will provide assistance on these expeditions and, at the same time, gather health data and collect various clinical samples for disease identification.

Samples obtained on the field trips will be cultured for bacteria and examined for parasites at the laboratory in Iquitos. The NAMRID laboratory in Lima will catalog and process the clinical specimens. Serologic studies will be done primarily by enzyme-linked-immunosorbent-assays, also



(Left to right): Ambassador Ortiz, LCDR Dudley, LCDR Escamilla, CDR Kilpatrick, and Fernando Belaunde Terry, President of Peru, with model of a Peruvian Navy gunboat.

called ELISA-techniques, to identify antibodies (past infection) or antigens (current infection) for viral (arboviral group, hepatitis group), parasitic (leishmaniasis, malaria, giardiasis), or bacterial (*Salmonella*, *Brucella*) diseases. Collaboration with researchers at NMRI, the Yale Arbovirus Research Unit in New Haven, CT, the Walter Reed Army Institute of Research in Washington, DC, and at other facilities in Lima will permit a more comprehensive evaluation of these clinical samples. Radioimmunoassay and electron microscopy studies will be possible through this collaborative effort.

Once certain specific diseases have been identified as endemic in localized areas of the Amazon basin, studies will be directed toward pinpointing their routes of transmission, vectors or reservoirs, seasonality, degree of contagiousness, and other epidemiologic factors. This information will form the basis for subsequent therapeutic and preventive research and development.

Several of the early studies will focus on Peruvian Navy personnel. Since hepatitis frequently occurs among recruits in the Iquitos area, serial serologic samples will be gathered from this group to determine if the clinical disease is due to hepatitis

A or B, yellow fever, mononucleosis, or perhaps other causes of hepatic dysfunction. A longitudinal serologic study of naval personnel will attempt to relate antibody presence to prior duty stations or location of residence. Outbreaks of acute diarrheal diseases will be investigated for bacterial etiologies, and the epidemiology will be studied.

The unique relationship existing between NAMRID and the Peruvian Navy will facilitate the focusing of research to meet operational needs, particularly those encountered in the jungle. Prospective studies of the illnesses seen during sick call at the Peruvian Navy dispensaries in the Iquitos area will not only aid in determining definitive diagnoses for infectious illnesses but will allow for appropriate therapy and the initiation of adequate preventive medicine programs. The data from these studies will benefit both the Peruvian Navy and the U.S. Navy.

The medical studies performed in conjunction with the civic action program also will be mutually beneficial. Portable laboratory procedures for use in a field setting have been shown to be reliable under various conditions. This laboratory diagnostic capability will provide verification for

clinical diagnoses, allow for specific therapy, and assure appropriate preventive medicine efforts in areas of the jungle far from established medical facilities.

The President of Peru, Fernando Belaunde Terry, welcomed the officers of NAMRID to Peru in a meeting on 17 Oct 1983. The country-to-country, navy-to-navy agreement for NAMRID's presence was signed in Peru by U.S. Ambassador Frank Ortiz and Minister of Foreign Affairs Fernando Schwalb on 21 Oct 1983 and in Washington, DC, by Surgeon General VADM Seaton and Surgeon General RADM Teneorio-De la Fuente on 14 Nov 1983. The "first stone" for the laboratory building was put in place by RADM Roger Milnes, MC, on 5 Dec 1983, when NAMRID's current laboratory spaces were dedicated.

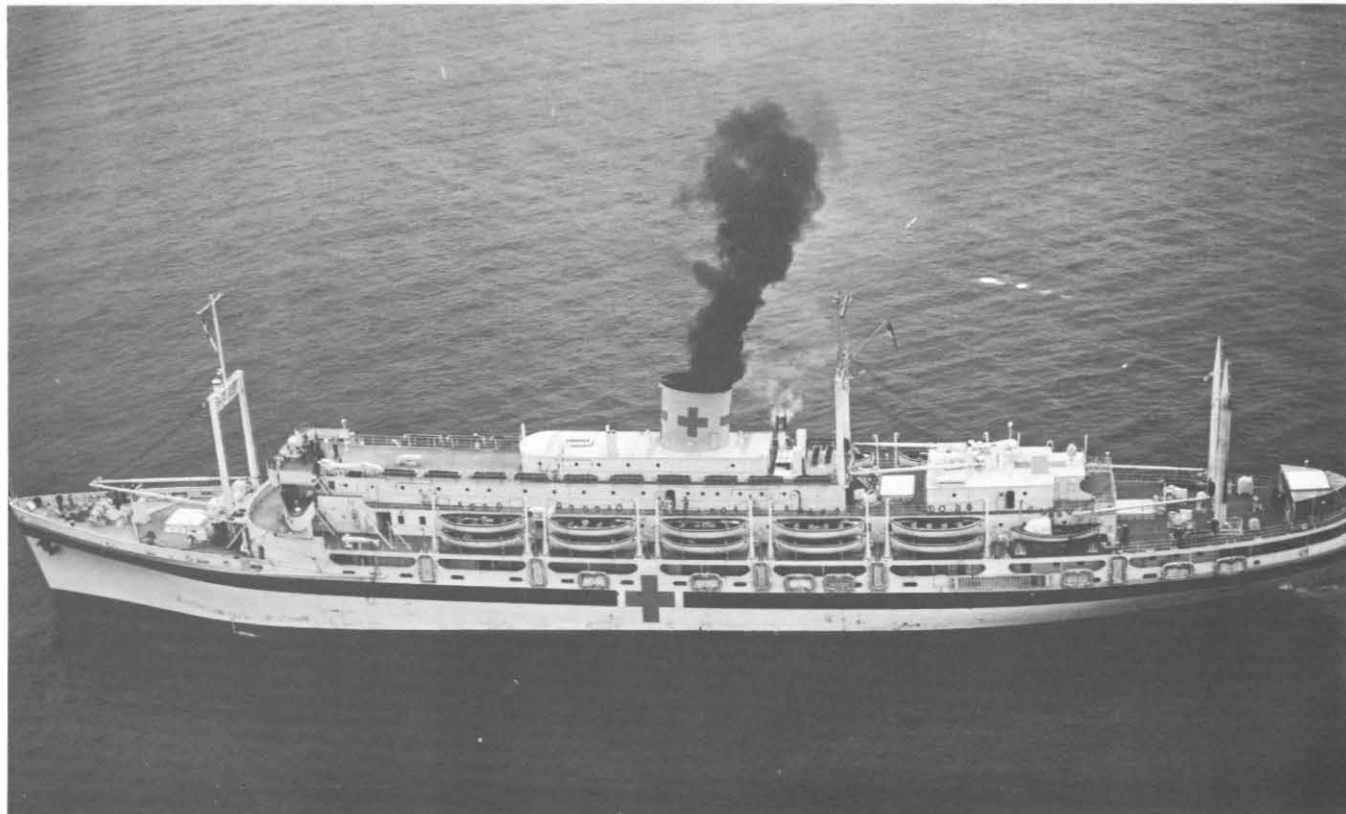
NAMRID has only recently opened its doors, but the foundation for sound medical research has been carefully laid. It should be possible to build upon that foundation and expand research activities to the mutual benefit of both the U.S. Navy and the Peruvian Navy. The long-standing cooperative relationship between both navies will nurture the joint research in tropical medicine until the fruits of this venture are realized. □

Cooling of Desert Heat Casualties

The article titled Heat Stress Field Study by Spaul and Greenleaf in *U.S. Navy Medicine*, March-April 1984, highlighted the growing acceptance of water spraying and fanning as the preferred method of heat injury cooling. A polyethylene canteen cap (pictured) was drilled out to admit the threads and flange of a discarded spray bottle. Silicone sealant was used for the adhesive. This modification allows field corpsmen to initiate spraying early with a minimum of extra equipment. The "C-Spray," as we call it, is currently undergoing testing at MCAGCC Twentynine Palms, CA.

—LCDR C. B. Jones, MC, USNR-R





USS Comfort (AH-6)

Forest Fires, Lightning, and the Moon

CDR H.F. Fultz, USN (Ret.)

USS Comfort was built by the Consolidated Steel Corporation and acquired by the Navy on 17 March 1943. She was commissioned at San Pedro, CA, 5 May 1944 under the command of CDR Harold F. Fultz, USN. LCOL Joseph F. Linsman, USA, was in command of the hospital.

Comfort was the first hospital ship to be manned jointly by Army and Navy personnel. The Navy crew was responsible for the ship while the Army provided the hospital personnel. She was the first ship to employ such a division of labor.

The late CDR Fultz was the first commanding officer of USS *Comfort* during WWII.

It's a good guess that 50 forest fires are gnawing their way right now through the coastal hardwood forests of New Guinea and the Philippines. It's a safe bet, too, that almost every night vivid heat lightning is flashing there with uncommon frequency, while of course the Moon performs on schedule.

No war affected these illuminators. They were nature's footlights on the close-to-shore stages of the drama of conflict. Their light was varying, yet occasionally substantial, and revealed navigational dangers to many a ship just in the nick of time.

Perhaps no type of vessel benefited more from these natural lighthouses than a hospital ship. Steaming almost

continuously and alone, often with hundreds of helpless patients on board, following tracks that were off the beaten paths, and blinded by her own glaring illumination, she needed every possible clue to check her position.

Rarin' to Go

This is the story of USS *Comfort*. On 21 June 1944 at about the very moment of the summer solstice, she sailed out of Los Angeles for Australia, brand new and rarin'-to-go. She was a unique setup, one of the first of our hospital ships to be Navy-manned and Army-staffed. The complement was 300 Navy and 220 Army, which

included 38 Army nurses; 600 patients could be cared for. LCOL J.F. Linsman, MC, USA, of Los Angeles was commanding officer of the hospital. The author was commanding officer of the ship.

It was a voyage of magnificent distances and a lonely one, too. Being illuminated we could not mix with blacked-out convoys and so had to keep just over the horizon from them. For 18 days we saw nothing but sky and sea. Many had never been so far off-shore before. None had ever gone so long on an "orphan" ship. It may have been imagination, but somehow I detected an uneasiness, a kind of murmuring such as must have occurred on Columbus' first voyage. It drifted up to my cabin about like this: "Nearly 3 weeks and no ship or land. Do you suppose those 90-day-wonders up there on the bridge know how to use those fancy instruments and do they understand those big navigation books?"

To allay any such apprehension I announced in the ship's paper that, barring bad weather, Cape Moreton, Australia, would rise from the sea dead ahead at 0900 the following Wednesday morning. Thus the Navy had committed itself, and it was a source of considerable relief when old Moreton put in an appearance about 0915 on the day promised, even though not quite dead ahead. All was well. The seamen had won the confidence of the landmen.

Cape Moreton is to Brisbane what Provincetown is to Boston; so it was mid-afternoon before we waved to the old codgers sitting under the awning on the "front porch" of fantastic, spindle-legged Pile Light and stood up the Brisbane River.

A hospital unit from Pittsburgh had been scanning the horizon for us for a long time and was ready, bag in hand. By "bag" I mean about 1,000 tons of hospital unit impedimenta. If immigration bars had been lowered and a ship allowed to load without limit, she could not have bulged more than the *Comfort* as she put to sea 4 days later on her first job.

If the congested loading caused any inconvenience, it was promptly superseded by that attitude of complete surrender that accompanies seasickness. We plunged into heavy weather and the long wait in Brisbane had made our new passengers' sea legs a bit shaky.

International Law

Full and down though we were, the loading had not been haphazard. Who and what a hospital ship carries is all regulated by international law. Outside her regular Navy complement, only persons of medical status or patients of the armed forces may embark. Thus if you are not a medico of some sort, the only way you may ride is to break a bone, or meet some misfortune like walking through *kanai* grass. As for cargo, only regular medical supplies and equipment and regular ship's supplies may be carried. Under no circumstances may ambulances, vehicles of any kind, or mail be transported.

Laws governing services rendered are also very clear. Once a cruiser engineer needed some 2-inch pipe desperately. Another time a destroyer skipper had an emergency machine-shop job. Both of these officers were old friends of mine but all I could give them were cups of our excellent coffee. The slightest assistance of this kind to a combatant ship would have made us liable to destruction. And you may rest assured that a full account of the indiscretion would have been on Tokyo Rose's next broadcast.

While on the subject of law we might as well cover some historical high points. International jurists have given considerable thought to hospital ships. Regulations were apparently needed as early as 1864. Our first hospital ships appeared 2 years before, in 1862. The several states furnished them. These state ships refused to carry any sick or wounded who were not of their state. Moreover, many able-bodied troops used them as a means of getting back home. The necessity for regulations and for having these vessels of national character was soon apparent.



Cruising area of USS Comfort

The names of military hospital ships must be communicated to all belligerents who must respect these ships and not capture them. The ships and their boats must be painted white with a horizontal band of green, and must fly the Geneva flag. At night, funnels, sides, and upper decks must show illuminated red crosses, a vessel darkening at her own risk. The sick, wounded, or shipwrecked of all belligerents, regardless of nationality, must be cared for. Of course, such ships must not be used for military purposes, must not hamper the move-



ments of combatants, and before and during an engagement must take their own chances. Belligerents may control them, visit them, refuse to help them, and order them to steer a certain course. An extreme emergency might warrant their detaining them. A hospital ship is forbidden any maneuver or stratagem to deceive the enemy. Perhaps the most surprising law is the one which allows a belligerent war vessel to demand and remove any patient.

Being liable to boarding by the enemy, we could carry nothing of a confidential or secret nature. We had

to be an open book. Thus we were deprived of radar which would have greatly reduced our navigational worries.

Forest Fires

The comparative immunity from rough treatment promised by international law was all very well, but a hospital ship must take care not to be lulled into a false sense of security. Mines, fires, and collisions, for example, are no respecters of such ships. Drills for abandoning ship were especially important. Fuel-oil tanks were

filled with salt water as soon as they became empty. This precaution insured no list in case a tank were holed, and so improved the chances of launching boats.

But to return to our seasick progress out of Brisbane. We had other things to think about besides rough weather and complicated laws. Our destination was Hollandia in New Guinea, and that meant passing through China Strait, Raven Channel, and the Tufi Leads (leeds). One glance at the chart and any navigator can see why these names are notorious. They are the pas-



sages in the great coral fields off the southeast corner of New Guinea, the "slots" through which a ship must squeeze to reach the northeast coast of that island.

In a 14-knot ship it's a 4-day run from Brisbane to these slots; then it takes a day to run them and three more to reach Hollandia. Designating New Guinea as an island is deceptive. It is 1,300 miles long. That's Florida to Cape Cod.

There was a great deal to be studied. We saw how very important timing was going to be in far Pacific coasting. For example: China Strait (north-bound) should be made at daybreak; Raven Channel negotiated with a high sun and never at night; while the Tufi Leads were best run in complete darkness. Clearly, our vital problem was to pass major hazards during daylight, and at night, to select as safe waters as possible. At sunset we must never find ourselves approaching a stretch whose passage was considered dangerous after dark.

It was a break that at morning-twilight on 20 July 1944, below the China Strait, there was that combination which is the dream of a navigator: stars, and a clear horizon under them.

A star is no help unless an horizon goes with it, because you are measuring the angle between the two.

A sunken coral reef bars the approach to China Strait as if the place held the Golden Fleece. There's an opening, to be sure, but to find it you must either get help from the sky, or spot a distant mountain peak. No peak showed on 20 July, so the clear sky was very welcome. The Strait itself is a series of dizzy turns through tropical loveliness. The big rollers of the Bismarck Sea cannot follow through the reefs, so all hands promptly forgot and denied seasickness.

By arriving at Raven Channel about 1000 with a good sun shining we were fortunate again. This channel is a tight squeeze between long coral reefs and right in the middle a sharp pinnacle lurks just below the surface. It's advisable to have the Sun high and behind you so you can see this pinnacle. Only one ship at a time passes through and at night ships keep away altogether.

This left the Tufi Leads. In this area of extensive scattered coral a ship is guided through a long narrow slot by means of ranges or leads on the shore. In daylight these ranges are hard to

make out, but at night their powerful lights are easy to follow. Throughout the war such beacons burned brightly in several spots in the Far Pacific where the danger from natural hazards exceeded that from the enemy. Our good luck held. We approached these ranges in inky darkness and picked them up 25 miles away. There was little trouble in "getting on" which means keeping the two lights exactly in line, one on the other. In this Tufi reach you finally pass a lighted buoy close aboard, continue exactly 6.2 miles along the range, then turn sharply to the right. It was here that we had our first help from forest fires. We passed the buoy, started on our 6.2 miles run and had gone only 5.4 miles by clock when a forest fire dead ahead on the shore near the blacked-out town of Tufi warned plainly that we must turn at once to avoid the beach. The current had fooled us.

By midnight all the slots were passed. Good weather and a forest fire had helped us through the worst stretch I'd ever negotiated in my 30 years at sea. Little did I suppose that we would go through these slots so often that they would come to be called "our milk-run."

*Rocket bombardment softens up the beach
before the Okinawa landings.*



At dawn came Mitre Rock. Off this queer little sentinel the sailing directions told of a flag-buoy marking a rock. No such buoy was seen and we tiptoed by. If a ship hits a rock in these parts, it is named after her, a distinction I preferred to waive. At midnight we had a turn to make in Vitiaz Strait off Long Island. The current here is very strong, so of course a check of our position was necessary. In the "eyes" of the ship (bow) we had a screen or dodger to shield the lookout from our glaring lights. At 2300 after patient-watching from behind this screen, the chief quartermaster, with the aid of a little head-lightning, made out the perfect cone of the 10,000-foot volcano which is famous in that area. Incidentally, this chief quartermaster, in our opinion, had the best eyes in the Navy, a happy circumstance which contributed materially to the safety of the ship as time went on. It was a great relief when he spotted that volcano, because from there on the run was fairly simple.

Big, safe Hollandia quickly absorbed our Pittsburgh medical unit, and a fine base hospital sprang up there. Then our shuttling began in earnest. For nearly 3 months we

steamed back and forth between the ports encompassed by Biak, Hollandia, and Brisbane, carrying patients, doctors, nurses, hospital units, and medical supplies. On two occasions our tasks extended to Manus in the Admiralty Islands and we had one job at Goodenough. It is an exceptionally beautiful island, yet no siren ever caused more tragedy, for mixed in with her tropical loveliness and sunshine is *kunai* grass which harbors the rats that carry scrub-typhus lice. The morning we stood into her peaceful bay, curiously enough, not a soul was in sight and although we made the hills echo with our whistle, no one appeared until we were nearly alongside the dock. We sent our bow and stern lines to trees on the shore. In fact, it was often necessary to moor this way in several ports because of the "softness" of the wharves.

Our shuttling or "milk-runs" involved 10 ports in all. In daylight, usually, a cordial reception awaited us, but after dark we were about as welcome as a skunk at a lawn party. Except for farsouth Brisbane, no one wanted an illuminated hospital ship in their midst. I'll never forget the good-natured, yet perfectly clear orders I received from the senior officer present afloat at Hollandia the first time I called on him. "Captain," he said, "I have 1,000 ships here in this port. Either you will have to get out at night or I'll have to take my 1,000 ships out."

Always the problem was timing. Our orders gave us as much latitude as possible and insisted only on definite times of arrival. But once we started on a trip we had to keep going. As most of our runs involved several nights, it often was a Chinese puzzle to plan so that the least hazardous waters would come during darkness. Forest fires, lightning, and the moon were all factors. A place might be a mad risk during the dark of the moon, but perfectly safe with a half-moon or better. It

made a great difference, too, of course, where the moon was in relation to the danger. We came to know all the coastal peculiarities. Lightning was more dependable in one place than another. And the fires seemed to loom up where most needed despite the fact that of course they are only accidental. It was not uncommon to see several well-separated fires at once.

Current was the factor that required the closest watching. It injected the element of risk into any night run and especially if such a run contained a turn, as at Tufi. At evening-twilight we fixed our position by the stars or by the land and then the long vigil would commence. The stars could not help again until morning-twilight brought an horizon, and it was a gamble how much the other aids would show the way. The hours just before daylight were the worst, and like St. Paul on his voyage to Rome, "We prayed for the day."

Occasionally, we ran plumb into a convoy at night, but as we were lighted and the ships in a convoy were dark, the solution was simple. We closed our eyes and kept on going in an absolutely straight line. Two men connecting a ship's hose follow about the same tactics: one man holds and looks away while the other man connects.

Little by little we worked the base hospitals up close to the Philippines. The whole world knew these islands were the next goal. Suddenly our "milk-runs" ended. Fueling to capacity and loading to the gunwales with medical supplies, we hurried to Leyte, arriving on 29 Oct 1944, on the heels of the invasion.

Philippine Campaign

To reach Leyte you stand in from the Pacific and pass between Homonhon and Dinagat Islands through a passage about 6 miles wide, then steam another 60 across a big, open bay. Despite the liberal width of this opening,



it was the policy at this time to have ships leave Leyte by 1500 to insure reaching the open sea by dark.

We arrived at Leyte at 11 a.m., went immediately to a prearranged anchorage, and started taking on patients and handing out medical supplies at a frantic rate. The place was "hot." All hands wore helmets and bombings were frequent. We had loading pretty well systematized by this time. Patients who

could do so, walked aboard. Stretchers could be snatched up out of boats at six points along our sides. Sometimes a vessel larger than the *Comfort* herself moored right alongside. A patient's diagnosis determined his ward, although, of course, immediate attention was necessary for some.

The distribution of supplies was simple and without red tape. Doctors or their right-hand-men came aboard

and carried away in a basket what they needed. Our storerooms resembled a wholesale drug house.

A series of events now took place that culminated in perhaps the greatest adventure ever experienced by anyone on aboard. The bulk of our patients were to come from Red Beach, and about 1400 word was received that they would be seriously delayed. We were asked whether we would be will-



Okinawa casualties receive plasma before being evacuated to Comfort.

valves being wide open. Valves, reducers, safeties, or any other device the elements use for rendering the Earth habitable had disappeared. First on the port quarter and finally on the starboard bow, a mad wind tried to tear us to pieces. Some experiences are indelibly stamped on your mind and you carry them to your grave, yet you cannot describe them. A 120 m.p.h. typhoon is one of these experiences. What a ship! Well designed and honestly fashioned, not a thing of importance failed, nor did material fatigue show in any vital spot. And what personnel! All hands, especially the 38 nurses, carried on with such courage and such attention to the wounded that no patient ever suspected that the roaring, crashing, pitching, rolling, and the wall of torrential rain were not things that the ship expected and took in her stride.

Just as no night was ever so dark as to put out the light of a candle, so no storm was ever violent enough to destroy hope. A little after 2200, the pulsating, fast-falling barometer reached bottom, stood for a bit, then rapidly rose. Confidence returned. By midnight all was well. By giving the ship all the speed she would take we had apparently held our own, and our bright illumination had undoubtedly saved us from collision. Strange to relate, the closest land during the height of the onslaught was a place with the cheering name of "Desolation Point." We learned next day that it had not been just a typhoon; it was *the* typhoon. Many ships were in serious trouble that night.

It's a 4-day run from Leyte back to Hollandia. Everything possible was done for the patients. This early care of the wounded is very important, and the *Comfort* was often complimented on the condition in which patients were delivered to base hospitals. Through the columns of our ship's newspaper, and by means of little

printed greetings, we welcomed our patients:

A Word to Our Patients

The *Comfort* is glad to have a clean bed for you and get you out of the mud. It is our purpose to give you as pleasant and as beneficial a voyage as possible. We hope you'll disembark in far better condition than when we took you aboard.

It is our guess after seeing your nurse that you will agree it takes the services of both men and women to make an efficient hospital. However, you are not supposed to forget the girl back home.

There will be congestion in the chow line, the movies may rip, and a ship near the equator is hot, but we ask you to bear with us.

For the Safety of all:

Never flip a cigarette but grind it out.

Never sit on the ship's rail.

Learn the way to your lifeboat so you can grope your way there in complete darkness. Bed-patients will of course be looked out for.

Hot Spot

There is no missing the lofty signal hill at Hollandia. We ducked in behind it and a convoy of ambulances whisked our human cargo back behind the mountains.

There were more poor fellows, many more, waiting at Leyte, so we changed the hospital linen, shined the decks, and headed back. This time we were ordered to heave-to, 175 miles southeast of Leyte and await orders. Apparently things up front were a bit too hot for us at the moment. On the second night of our waiting, three bombs straddled us. This was the first time the opposition had ever honored us with attention. We blacked out at once and began to zigzag at top speed. All hands got dressed and kept under-cover. There's no chapter in international law that tells you what to do in such a case. Dawn was very welcome.

Promptly we told the world by radio in plain unmistakable English what had happened. Just before noon, a destroyer came tearing over the horizon to present her squadron commander's compliments and express the hope we were all right. A little later in the day,

ing to postpone sailing beyond the customary 1500 limit, and agreed to do so as the Moon was nearly full. It was 1800 before we weighed anchor. As we crossed the bay a very weak Moon started up the sky and things looked ominous.

At exactly 2100 of 29 Oct, as we reached the opening to the Pacific, the weather suddenly went completely out of control. It wasn't a case of nature's

Wounded from the Okinawa campaign are taken ashore at Guam for further medical treatment.

Tokyo Rose assured the world it was all a big mistake, so sorry. It's a bit disconcerting to be an unarmed, defenseless, highly-illuminated target alone on a big ocean, and, incidentally, over the deepest place in the ocean. Two more nights we tarried at the spot, and each night just before sunset all hands were called aft for a general mutural reassurance that Tokyo Rose was sincere.

Plenty of stretchers were waiting at Leyte and we bulged as we stood back for Hollandia. The Hollandia hospital was apparently bulging, too, because orders came to take 600 of their patients back to the United States.

On the morning of 28 Nov 1944 the *Comfort* rounded the signal hill at Hollandia bound for Los Angeles. The whole harbor knew our destination and the ships expressed their cries of envy. It was a time for careful watch for epidemics of shot-off toes, broken ankles and such things. Once more and for the last time, we ran the slots of Tufi Leads, Raven Channel, and China Strait, then settled back without worry and for 3 weeks followed the sky to California. It's a long sky from the star over the signal hill at Hollandia to the one over Point Fermin, San Pedro, and just to complicate the measurement, the stars slide over a bit each day.

When a ship is commissioned, a skipper has to say something. Of the various things I said at the *Comfort's* commissioning, perhaps the one I stressed the most was this: "Our strongest pill or powder, our most skillfully wielded surgeon's knife, will be trifles compared to the new life that will flow through a man's veins when once again he beholds the outer buoy of his native land." How true this proved to be as Catalina Island came out of the fog on 22 Dec. And then Bob Hope and his good gang were waiting on the dock and gave us a whole hilarious evening. The final touch of good

cheer was the fact that it was just 3 days before Christmas.

Over 8,000 tons of medical supplies were on the dock labeled "Philippines." Of course, such a cargo would sink the *Comfort*, but we loaded all the old Plimsoll Mark would permit, and on 8 Jan 1945 sailed for Leyte with orders to lose no time.

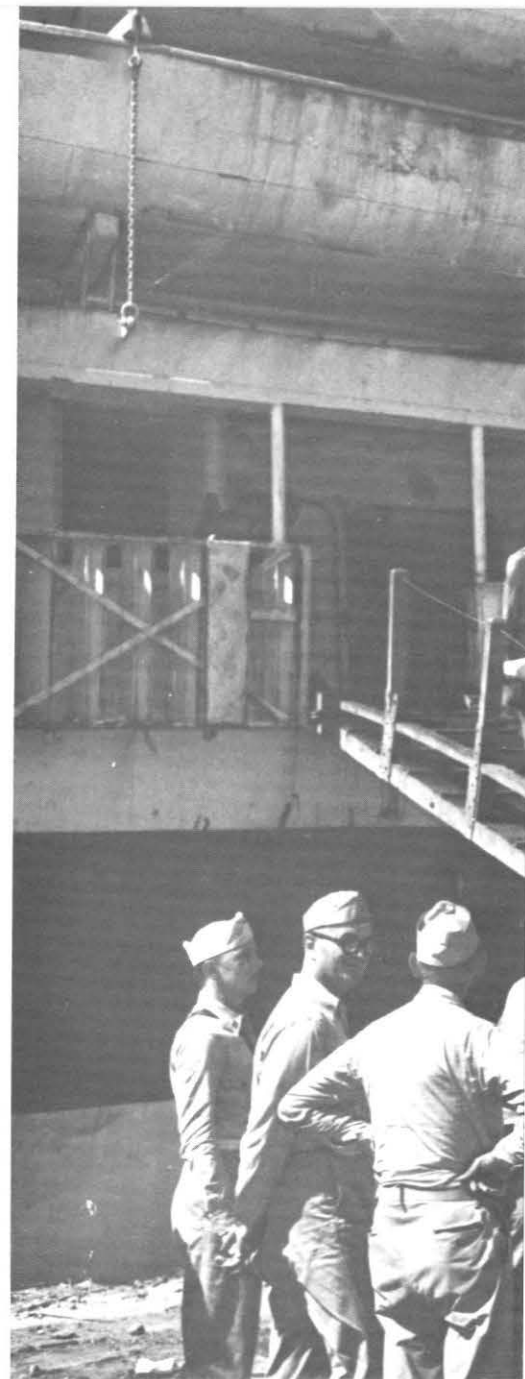
Just before sunset, 15 days later, we stood into Eniwetok Atoll for final routing. This atoll is about the two-thirds mark and apparently all-the-way routing was not advisable because the war might end, belligerents change sides, or our cargo be needed at another destination. We hove-to and sent an officer to the beach for this routing, requesting it be expedited in order that the atoll might be cleared by dark.

Back came the officer. The message that he brought was clear. We were to anchor in the berth off the Officers' Club and at 2000 boats would call to take our nurses to the club dance. Everybody understood. The atoll held a large number of aviators on their way to very "hot" spots. It was a case of morale, another example of the pill, powder, and surgeon's knife *versus* the outer buoy. At dawn we nosed out for Leyte and made a good run of it.

We were expected at Leyte, all right. A pilot swung aboard the minute we arrived and took us to the inside dock at Tacloban, where a convoy of trucks was waiting. Everything came through in good order, even our large amount of biologicals. The Army was so kind as to tell us so in writing, and this letter was immediately broadcast to all hands.

Lightning and the Moon

There was still considerable patient traffic, but the high tension was gone. We could spend the night now, although, of course, with doused lights. Two loads we took down to Hollandia; then Manila was recovered and



orders came which sent us into our most serious huddle. Forest fires, lightning, and the Moon would have to stand by in earnest. We were to head back for Leyte, but at the Homonhon-Dinagat opening, swing south through Surigao Strait and proceed up the unlighted west coast of the Philippines to Subic and Lingayen. Getting there would be no trick, as there would be about a half Moon in the right direction for silhouetting the shore. But the return trip was another story, for if



Photos from NAVMEDCOM Archives

there were any delays along the route, a very meagre Moon would be left for us. The huddle was short, the situation clear. A definite night risk had to be accepted on the return trip, and would consist in making a sharp turn off the southwest corner of Negros Island during the second night.

Even as we huddled we were getting up steam. We made the run to Subic in record time but to little profit as there was so much excitement over the events in nearby Manila that no one

was particularly interested in our wandering Moon.

Once released, however, no time was lost getting up to Lingayen. Here the port captain gave us a real hand by loading us promptly, even coming aboard to write our return orders on the spot. Before his signature was dry we were on our way.

The first night was over a safe stretch, lighthouses or no lighthouses and the next day we passed all the bad spots in Mindoro Strait, clearing the

last danger, a bad rock off Panay, just at sundown. We were then in the Sulu Sea and our real hurdle at the southwest tip off Japanese-held Negros Island was a little over 100 miles ahead.

At 0200 we took a hitch in our belts and toed the ship in for the coast. Clouds shrouded what little Moon there was but fortunately lightning was not only frequent but in the direction to furnish a silhouette of the shore.

Long before there was any probability or sighting anything, the navigator, assistant navigator, and chief quartermaster got well established behind the screen in the "eyes." About 0220 a faint outline of the coast was made out and we stood in as close as we dared and then paralleled the shoreline. At night you see only half as far as you think you do. Then the real lookout began. The trip or tangent of Negros must be sighted definitely and positively and the *Comfort* swung close around it into the Mindanao Sea. Overrunning would be disastrous as there are reefs just below Negros and turning too soon would ground us on an enemy-held beach.

Many years before, in the happy days of peace, I had passed this place in the USS *Marblehead*. There was a little town with a prominent church dome, a schoolhouse and a sugar mill with a white stack. If they had weathered the war and could signal to us now, how willing these representatives of church, education, and industry would be to guide us safely by their shores. But all was in darkness.

Anxious moments passed. Two forest fires were welcome sights. Although apparently far inland, they gave assurance that the blur we were calling land was actually land, and not a fog-bank or cloud.

It seemed hours, but we had been on our parallel course about 10 minutes when the chief quartermaster, the one with the best eyes in the U.S. or any other Navy, sang out "Tangent, broad on the bow!" Presently, the two navigators saw it, too. There was no question about it for on the trip up we had taken a careful look at this tip and formed a good mental picture of its steep, wooded shores descending abruptly into the sea.

The *Comfort* was swung into the Mindanao Sea. The race against a waning Moon had been won. Despite clouds, this Moon and lightning had safely lighted the way for 600 wounded men.

Soon after dawn a large repair ship hove in sight headed for the route we had just covered. It was apparent her

navigation strategy was to clear the dangers of the Sulu Sea before dark and take her risks in Mindoro Strait, while we had elected to take ours off Negros Island.

It was all plain sailing now. Heavy weather, an unlighted convoy, or perchance a stray mine might be on our track to Hollandia but these were things over which we had no control. Keeping a ship in deep water, however, is and always will be a professional trust whether it be wartime or peacetime.

About this time the war moved up rapidly. Hovering at Ulithi Atoll for awhile we finally closed in and stood by at Okinawa. For a week we anchored there near the beach during daylight and ran to sea each night. Okinawa will always bring back memories of the visit General [LTGEN Simon B. Jr.] Buckner* paid us. Five hundred patients were aboard at the time. He paused by each bunk and greeted each man as if he were his own son. History has recorded many such incidents of morale. After all, they are the real weapons that keep a nation's flag flying. At Waterloo a private said of Wellington, "I would rather see his crooked nose than 40,000 men!"

Okinawa was a "hot" place, yet miraculously we returned to our base at Guam unscarred. Undaunted and trusting, the *Comfort* returned to Okinawa but I was "detached" before she sailed. I was in New York when "Japanese lightning"*** struck her and cut off from life 32 as gallant and faithful Good Samaritans as ever lived.

It all seems a long time ago, yet how the details stand out! We had the best of everything. No captain ever had better backing. All hands knew that with 600 wounded and sick below, the ship must not only be kept in deep water but any incident must be avoided that would cause apprehension among those helpless men.

Our most vital instrument was the gyro compass. It received attention that was devotion itself. Every conceivable navigational help was sought and used. But navigation is not an exact science. No two helmsmen steer alike. Deflection due to wind is not a positive thing, and who can be sure that a current will not, during a long night's run, move a ship bodily over onto some coral reef despite the fact that the book says no such current exists! Then, too, on an especially important night, there may be no forest fires. Lightning may decide to be absent and the Moon may take that night to hide behind clouds.

So there's luck involved. Yet luck is not the word. The word is God. My cabin was right off the bridge. A few steps and I could be in privacy, a space ideal for prayer. There were many prayers. All were answered. Without Divine Guidance I am certain that the dangers of the Pacific would not have been avoided for 78,000 miles.

Epilogue

On 28 April 1945, while cruising about 30 miles off Okinawa, a Japanese Kamikaze plunged through *Comfort's* superstructure, penetrating two decks. The plane struck the surgery room, then filled with patients, nurses, doctors, and crewmen. The blast killed 28 persons, including six nurses, and wounded 48 others. All surgical and X-ray equipment were a total loss and other parts of the vessel were severely damaged. The ship was able to continue on to Guam under her own power and arrived on 3 May, when a mass funeral was held for the victims. CDR Fultz had been relieved from command for a medical disability just 12 days before the suicide attack.

When temporary repairs were completed, the ship sailed for the United States, arriving at Terminal Island, CA, on 28 May. After time in the Yard, *Comfort* sailed for Subic Bay, carrying 500 passenger nurses. Upon her arrival, she took up duty as a station hospital. The ship was transferred to another government activity in April 1946. □

*General Buckner was killed in action on Okinawa 18 June 1945.

**Kamikaze

Marine Corps Logistics Base Fills the Need

In the coming years, doctors and corpsmen will find it much easier handling surgical cases with a means for quickly and efficiently replacing or refurbishing vital medical emergency blocks on a regular basis.

The new project, almost 2 years in the making, involves refurbishing one or more Mobile Medical Augmentation Readiness Team (MMART) medical blocks staged aboard ships or prepositioning them at naval hospitals for deployment and use by existing, operational surgical units during emergency situations.

"For several years, sailors stationed at naval hospitals have been tasked with building and maintaining medical blocks assigned to surgical teams which augmented the LHA/LPH ships and provided additional surgical capability to the operating forces," says Chief Petty Officer Zane Smith, one of 10 sailors assigned to the project from Materiel Division. "The configuration and contents of the containers, however, varied as the individual command interpreted the Authorized Medical Allowance List (AMAL) requirements differently."

The task is building and maintaining medical blocks for deployment or use by surgical units that will coincide with AMAL's and block construction guidelines provided by the Naval Medical Materiel Support Command in Philadelphia.

From a technical standpoint, the blocks are labeled AMAL 003, 004, and 009. Simplified, 003 is a surgical supply block containing enough consumables and equipment for 100 major surgery cases, 004 contains enough consumables to resupply a surgical supply block for an additional 100 cases, and 009 holds sufficient con-

sumables and equipment to provide postoperative-recovery room care for 100 surgical cases, 30 of whom require intensive care.

Each block is a collection of mount-out containers—carefully inventoried, labeled, and packed with the proper equipment and consumables that match the specification designed for each major block.

Long-range goals are to provide blocks that can be deployed for at least 1 year without refurbishment, and then as additional blocks are built, they will be shipped wherever needed to replace blocks needing refurbishment.

The concept of the project, known as MMART Supply Block Maintenance/Distribution Center (SBM/DC), seems simple enough, but what it took to implement the project was a bit more complicated.

The Marine Corps Logistics Base, Barstow, CA, accepted the project of building and maintaining the medical blocks in October 1982. Because of the nature of the project it was assigned to the Plans and Projects Section of Materiel Division.

"Allowance lists had to be researched and formulated, block construction guidelines had to be developed, and funding had to be provided by the Naval Medical Command in Washington, DC," Chief Smith says.

As plans developed a more formal worksite was selected for construction of a SBM/DC facility with a projected completion date of April 1985.

According to MAJ Bob Semmler, head of the Plans and Project Section, the facility, to be located in Warehouse 5, will include office spaces with an area for two computer terminals and

one printer, a medical repair room, a central supply-sterilization room, a classroom, and a warehouse work area to include storage space for medical material.

Eleven sailors are onboard and, one more is expected in the near future. To augment the military assigned to the project, five civilian positions were established to provide additional support.

The project got underway in February of this year when the first 003 block was received from the USS *Okinawa*.

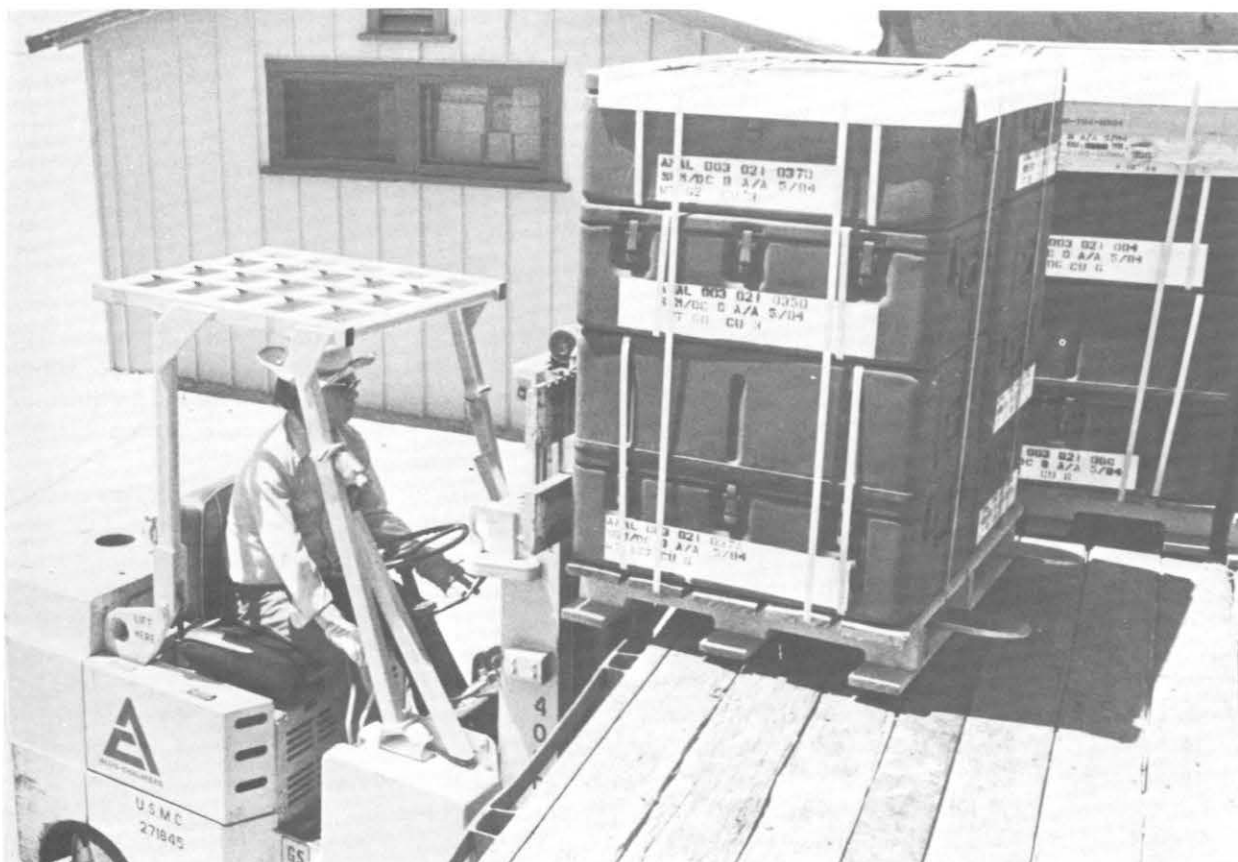
"The first thing we had to do once the contents of the containers had been taken out was to separate those items considered hazardous, i.e., materials and gases that have to be disposed of through the Defense Property Disposal Office (DPDO)," Chief Smith says. "Controlled drugs that were still usable had to be put into a vault for security reasons, and refrigerated items received had to be put into freezer bags and then into cold storage."

Any of the equipment that was no longer usable also had to be separated for disposal by DPDO," Smith added.

From there all the gear had to be inventoried to see what could be put back into the containers and what needed to be ordered to bring the block up to par.

Chief Smith estimated that 30-40 percent of the equipment and supplies needed to fill the containers wouldn't be usable and would have to be ordered. That usually takes about 10-14 days through normal supply channels, according to Smith, which means working very closely with the folks from Tech Research, Quality Control Branch and DSSC.

"When we come across supplies that aren't readily available through nor-



Forklift driver, Billie Cook, places the MMART medical block on its platform for shipment to its new destination.

mal procurement channels, Contracting and Purchasing Branch gives us a hand in being able to purchase these supplies locally," Smith says.

On the average, the 003 block, weighing approximately 6,400 pounds and having a volume of 450 cubic feet, costs roughly \$82,000. A 004 block, weighing in at 4,200 pounds and having a volume of 225 cubic feet costs approximately \$29,450, and a 009 block, with an approximate weight of 2,060 pounds and a volume of 152 cubic feet, costs about \$55,800.

Until the equipment and supplies arrive for packing, the empty metal canisters are sent to Packaging and Maintenance Branch (PMB) for refurbishment and upgrade. Smith said this includes cleaning, painting, repairing, and marking the canisters in addition to providing a variety of packing mate-

rials and expertise when the metal cans are repacked.

While this is going on, other team members are performing preventive maintenance and calibration on all equipment, which could range from field operating tables to anesthesia machines.

Nothing is left to question. Even the linen used in the surgical block is laundered at the base facility.

One delay the team does face involves sterilizing approximately 1,500 individual instruments and 11 separate surgical trays.

"Right now we don't have the necessary equipment to do the sterilization here," Smith says. "We have to take the equipment to the hospital in San Diego. We'll remedy this situation when our facility is constructed." The method of sterilization, though, in-



HM3 Roxie Ruggeri, who works the supply end of the MMART project, orders many of the items that will fill the metal canisters.



Photos by CWO3 J.W. Smith

Left: HM2 Bill Jones checks packing list against contents of supply canister. Right: HM1 Romeo Santos and HM2 Jones double check special packing material around a sensitive piece of surgical equipment before the metal canister is banded.

sures the trays are sterile and usable for up to 1 year from the date of sterilization.

For those items that require special handling, people at PMB package and label hazardous materials in accordance with DOD and sometimes, international regulations. They also package controlled substances and refrigerated items separately.

"Once we receive all the supplies necessary and everything is in order, we start packing each canister with those items listed on the inventory checklist for that particular canister," Smith pointed out. "Sensitive medical equipment is packed with special materials to insure the equipment isn't damaged in shipment. The canisters

are then banded individually and placed onto pallets and banded again for shipment to ships or hospitals.

Detailed packing lists are forwarded with the surgical block to ease the burden of locating the supplies once the block arrives at its destination. Where each of the blocks will go is based on guidance received from the Naval Medical Materiel Supply Command and expected completion dates in building each block.

Once supply storage levels at the distribution center at Barstow is established, refurbishment of a surgical block can be expected to be 2-3 weeks from the time it is received to the time that same block is shipped out.

When the project is in full opera-

tion, a minimum of 54 blocks a year will be refurbished, certainly something that will enhance the medical support capability of the Navy and at the same time strengthen the bonds of a Navy-Marine Corps-civilian team at the logistics base.

The first surgical supply block was shipped out of the logistics base on 10 July enroute to Long Beach Naval Hospital for further staging aboard USS *Peleliu*.

It will be a sigh of relief for doctors and corpsmen there knowing all the necessary equipment is on hand, thanks to a special group of Navy, marines, and civilians employed at Barstow. □

—Story by CWO3 J.W. Smith, USMC



Army helicopters "strafed" enemy positions just prior to the Marine assault force landing along the beaches during MEDTENOREX '83.



A "severely wounded" marine receives emergency treatment under the close scrutiny of evaluators.



JO2 J.M. Jones

Proper emergency field medicine procedures were stressed during the simulated battle.

Battlefield Medicine Training

Navy medical personnel assigned to the Marine Corps know that combat can require them to possess the agility and physical fitness of an athlete plus extensive knowledge of emergency care procedures. The call for a corpsman during a battle can mean a foot race between life and death.

Reserve medical personnel are hard pressed to duplicate battlefield conditions within a Naval Reserve training center. It is one thing to attend classes, watch films, and treat simulated wounds in a comfortable Reserve center setting, but it is quite another matter to practice emergency care of wounded marines behind clouds of smoke with the roar of gunfire ringing in one's eardrums.

LCDR Robert Heisler, MSC, the medical programs officer for Naval Reserve Readiness Command Region Ten, headquartered at New Orleans, LA, CAPT Thomas Birdwell, MC, USNR-R, a selective reservist and commanding officer of the Fourth Force Service Support Group Medical Battalion, Pensacola, FL, and HMCS R.D. Dunn, of the REDCOMREG-TEN staff, worked for months on the notion that a simulated battle in the field could be made into a realistic training exercise for Reserve hospital corpsmen. Basically, they wanted to grade the corpsmen during stressful situations that require fast evaluation of wounds and accurate treatment in the field.

With this basic goal in mind MEDTENOREX '83, an acronym for Medical Ten (Readiness Command Region Ten) Operations Readiness Exercise, was established. Medical personnel from Naval Reserve Readiness Commands in Regions Nine and Ten, marine reservists from the Third Battalion 23rd Marines, New Orleans,

Fourth Assault/Amphibious Battalion, Company A, Gulfport, MS, and flight crews from the 282nd Army Reserve Aviation Company, Fort Rucker, AL, were all brought together for this training exercise.

The 3-day medical training exercise was held on a tiny island off the Mississippi Gulfcoast 26-28 Aug 1983. MEDTENOREX '83 was designed to train and refamiliarize military doctors and hospital corpsmen in emergency field medicine practices and field administration.

The scenario began in the early morning hours of 27 Aug. A mock enemy unit of Reserve marines was placed on the island to simulate an assault objective. The island, located about 5 miles from Gulfport, was ideal for the exercise with its sandy beaches, tall grass, and clusters of trees.

A Marine LVT C-7 and eight VTP-7 Amtracs ferried marines and naval reservists from the Gulfport Reserve center to the beachhead. The amphibious assault was supported by an air attack conducted by five UH-1H "Huey" Army helicopters.

Shortly after the beachhead was secured, two tents were erected to serve as battalion aid stations. During the battle "wounded" marines, marked with moulage wound simulations, received emergency first aid in the field as evaluators graded them on procedures. When delivered to the battalion aid stations manned by 3rd Battalion, 123rd Marines, New Orleans, and the 1st Battalion, 23rd Marines, Houston, the Reserve hospital corpsmen practiced triage and field medicine practices. Navy doctors diagnosed the casualties and insured that all field administrative work was correctly documented. The moulage wounds used during the exercise were burns,

broken bones, puncture wounds, and lacerations. The moulage-wounded marines also role played as victims and their performances made the battalion aid station scene appear even more realistic.

During the predawn hours of the third day, the "enemy" staged an attack on one of the battalion aid stations in still another attempt at simulating realism. The weather proved realistic as well. Tropical storm *Barry* caused a heavy downpour the previous night.

Field Commander and MEDTENOREX '83 Umpire, CAPT Birdwell, summarized the main benefits of the exercise by noting that it was "an excellent operation which afforded medical personnel attached to the Marine Corps an opportunity to evaluate themselves and determine their state of readiness."

CDR Peter Andrus, commanding officer, Fourth Marine Division, First Battalion, 23rd Marines, Houston, commented, "The corpsmen functioned smoothly and showed good skills in terms of management and lifesaving activities in the battalion aid stations."

MEDTENOREX '83 demonstrated that medical personnel from Readiness Commands in Regions Nine and Ten assigned to the Marine Corps can meet the challenges of combat situations. The exercise also demonstrated their strengths and weaknesses. Tested "under fire," the reservists plan to train for a year then hit the beaches again. MEDTENOREX '84 should prove to be another successful training exercise that underscores realism and readiness. □

—Story by JOC James L. Hall, Naval Reserve Readiness Command Region Ten, New Orleans, LA

A Functional Splinting Technique for Traumatic Injuries

CAPT D.D. Antrim, DC, USN

The military dentist's patient population is composed of active young adults whose jobs in the service are sometimes hazardous. As a result, the dentist is often called upon to render emergency treatment of traumatic orofacial injuries, including treatment of luxated or avulsed teeth. A basic part of this treatment would be repositioning and stabilizing the involved loosened teeth. There are a variety of techniques for repositioning and stabilizing traumatically luxated or avulsed teeth. Such techniques include the use of wire ligatures and arch bars,⁽¹⁻⁴⁾ quick-curing resins,⁽²⁻⁵⁾ orthodontic bands with ligatures and acrylic resin,^(3,6,7) acrylic resin incisal splints,⁽⁸⁾ wire reinforced with acrylic resin,⁽⁹⁾ direct-bonding cement and wire,⁽¹⁰⁾ and orthodontic brackets with arch wire.^(11,12)

The effective attachment of resin to enamel surfaces via the acid-etched technique has greatly facilitated the fabrication of splints.⁽¹³⁾ The purpose of this article is to present a splinting technique for traumatically luxated or

Figure 1. (A) Extruded maxillary central incisor. (B) Splinted with single strand of nylon line.

Figure 2. Procedure for splinting avulsed maxillary central incisor with single strand of nylon line. (A) Tooth missing. (B) Tooth replaced in socket; rectangular areas of labial surfaces of replaced and abutment teeth acid-etched. (C) Nylon line being positioned with hemostat. (D) Nylon line attached to first abutment tooth. (E) Nylon line attached to second abutment tooth and repositioned tooth. (F) Smoothed splint.

avulsed teeth that uses a monofilament nylon line and acid-etched resin. The splint stabilizes the traumatized tooth and at the same time allows physiologic movement. It is easy to apply, atraumatic, relatively esthetic, hygienic, durable, comfortable, and easy to remove. The only drawback to the splint is that it cannot be used to span edentulous spaces.

Discussion

Massler⁽¹⁴⁾ hypothesized that teeth that are repositioned and rigidly immobilized within the alveolar socket for longer than the optimum time of stabilization tend to develop an attachment apparatus that is unorganized, and the teeth become ankylosed. His analysis of available evidence indicated that teeth that have the opportunity to move physiologically are less able to ankylose because the periodontal fibers reattach and realign in a proper functional relationship. Andreasen⁽¹⁵⁾ used primates to test the effects of either splinting rigidly or not splinting at all. Histologic evalua-

tion showed there was less replacement resorption or ankylosis in the teeth that had not been splinted than in those held tightly in place. He suggested that the functional stimulation received by nonsplinted teeth may prevent or eliminate replacement resorption because such stimulation may depress osteogenesis and enhance fibrous healing. This phenomenon has been reported in insufficiently splinted bone fractures.⁽¹⁶⁾

A splint made of monofilament nylon line offers a compromise between rigid splinting and not splinting. The line is flexible and allows some degree of physiologic movement while concurrently holding the luxated or avulsed teeth in proper alignment. This slight movement may prevent the development of replacement resorption and ankylosis. The size of the nylon line determines the degree of movement. A small-gauge line, such as a 12-lb test line, is more flexible and thus allows more movement. The more rigid 20-lb test line allows less movement.

Dr. Antrim is director of Educational Services at the Naval Dental Clinic, Naval Medical Command, National Capital Region, Bethesda, MD 20814.

Portions of the article have appeared earlier in a slightly different form in the *Journal of Endodontics*. Copyright by the American Dental Association. Reprinted by permission. Photographs through the courtesy of Dr. J.S. Ostrowski.



Figure 1A



Figure 1B

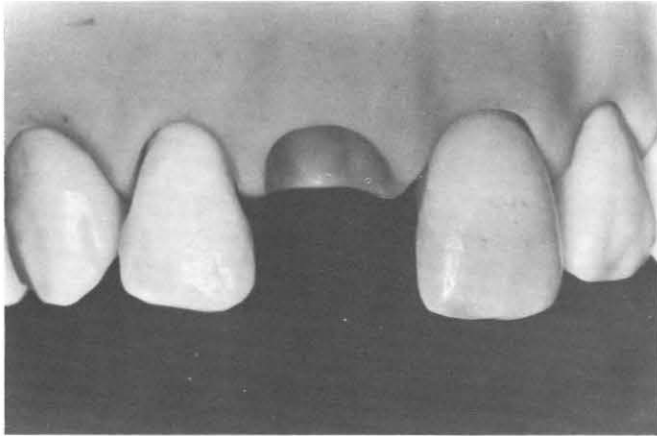


Figure 2A



Figure 2B

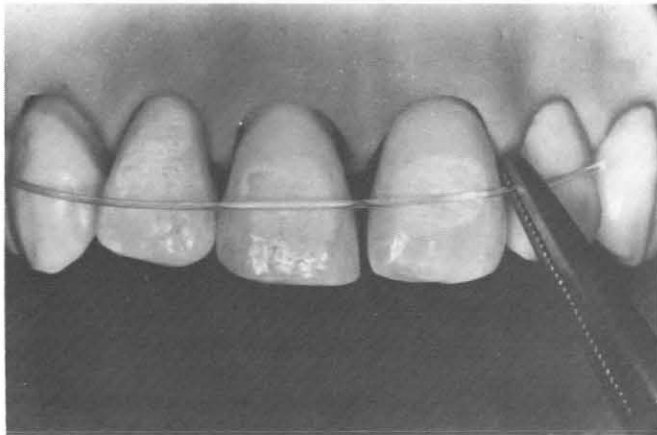


Figure 2C

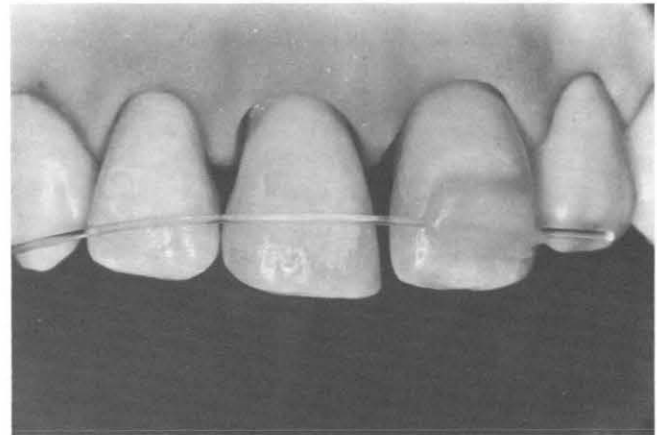


Figure 2D

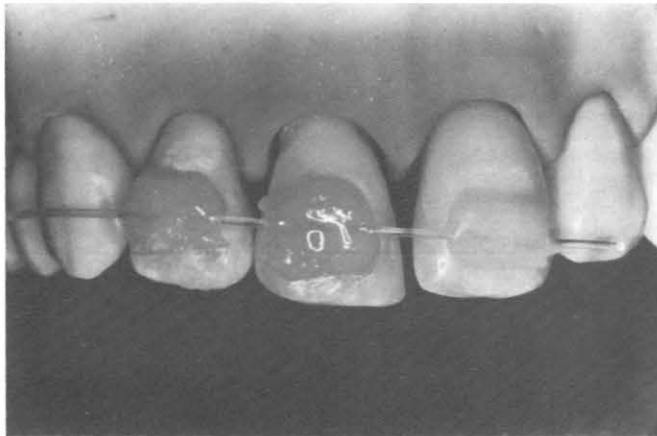


Figure 2E

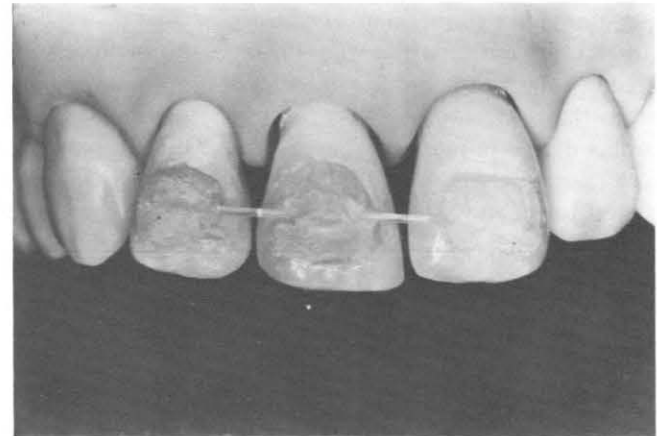


Figure 2F

Technique

The splinting technique requires either a filled or an unfilled restorative resin, the enamel-conditioning agent for any acid-etch adhesive system, and a 12- to 20-lb test monofilament nylon line.

The patient must be examined carefully to determine the extent of injuries to the dentition, supporting structures, and soft tissues. The examination should include radiographs, palpation, and visual inspection. After the wound has been debrided, the luxated or avulsed tooth is repositioned and the occlusion is checked. Occlusal prematurities should be removed to minimize additional trauma to the involved tooth.

For effective anchorage the nylon splint should include one or more stable teeth on either side of the repositioned tooth (Figure 1). When there are fractures of the tooth or alveolus or the injury involves more than one tooth, it may be advisable to use a double strand of nylon to obtain more rigidity.

Figure 2 shows the step-by-step procedure for applying a single-strand monofilament nylon splint for an avulsed maxillary right central incisor. The splint can be applied in the following steps:

1. Apply rubber dam. Using a rubber dam makes attachment of the splint easier because the field is kept drier and the gingival tissue is protected. The repositioned tooth and adjacent teeth are isolated with a medium-gauge rubber dam. There are times, however, when the injury involves fractured alveolar bone and more than one tooth, and placing a rubber dam is impractical. These complex cases might require isolation with cotton rolls.

2. Acid-etch labial surfaces. Retentive areas for the splint are prepared by acid-etching enamel surfaces. To facilitate adequate anchorage teeth should be cleaned before acid is applied to surfaces. Pumice labial surfaces of teeth isolated by the rubber dam. If teeth cannot be isolated and pumiced

because of soft-tissue lacerations, they should be wiped clean, rinsed, and dried.

Apply acid-etch conditioning solution with a small brush or cotton pellet for time specified by the manufacturer. Condition labial surfaces only; proximal surfaces are specifically excluded. Apply solution to a rectangular area approximately 3x5 mm in the middle third of the crown (Figure 2B). Be careful to avoid touching soft tissue with the acid.

Rinse the conditioned enamel surfaces to remove acid and dry with air. The surfaces should appear dull or frosted. If they do not, repeat the conditioning process for an additional 30 seconds.

3. Attach monofilament line to abutment teeth. Apply a thin coat of filled or unfilled liquid resin to etched areas on labial surfaces of the teeth. Cut a piece of nylon line of sufficient length to span those teeth to be splinted. Using a hemostat, hold the nylon line in place against teeth (Figure 2C). Attach one end of the nylon line to etched area of the first abutment tooth with a creamy bead of resin (Figure 2D). Allow resin to set and attach the other end of the line to the remaining abutment tooth.

4. Attach monofilament line to traumatized tooth. After abutment teeth have been splinted, recheck position of the repositioned tooth to insure proper alignment and attach the nylon line to tooth with a bead of resin (Figure 2E).

5. Smooth the splint. Check the occlusion, adjusting it if necessary. Trim protruding ends of the nylon line at both ends of the splint. Smooth and polish splint with suitable burs, stones, or sandpaper disks, taking care not to nick or cut the nylon line (Figure 2F).

6. Remove splint. The splint can be removed easily after an appropriate stabilization period. One week to 10 days is optimum for a relatively simple luxated or avulsed tooth. If alveolar bone has been fractured, the arch should be stabilized long enough to allow the bone to heal, approximately 6-8 weeks.

To remove splint, cut the nylon line between each tooth and remove the bulk of resin with a high-speed bur, diamonds, or disks and stones. Using a 12-fluted flame-shaped finishing bur (No. 7901) in a high-speed handpiece is an efficient, atraumatic means of removing resin from enamel surfaces. Alternative methods of removing material would be using the ultrasonic scaler or sharp hand instruments. The final step is to polish tooth surfaces with prophylaxis paste and to treat them with a fluoride.

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Patients With Ischemic Chest Discomfort in the Operational Setting

LCDR Rodney W. Savage, MC, USN
HMCS Richard L. Blake, USN

LT A. Robert Blacky, MC, USN
CDR Daniel C. Collins, MC, USNR

Ischemic heart disease is certainly not limited to the retired population. The incidence rate of cardiac disease in naval personnel is 58.4 cases per 100,000 active duty members per year. (1) The Cardiac Care Unit (CCU) records at Naval Hospital, San Diego showed that during CY82 a total of 50 active duty patients were admitted with ischemic chest discomfort. Of this total, 16 suffered acute myocardial infarction and one died. As the average age of the active duty population increases, these numbers may be expected to increase.

Staggering advances have been made over the past two decades in the diagnosis and treatment of coronary artery disease. These advances, however, are concentrated in the shore-based hospital setting. Out-of-hospital mortality remains high, largely due to arrhythmogenic sudden death. Of all deaths from myocardial infarction, over 40 percent occur prior to hospi-

talization, most of them within the first 2 hours after onset of symptoms. (2)

Therefore, medical personnel in the operational setting must be prepared to:

- recognize the various syndromes of ischemic chest discomfort,
- provide cardiopulmonary resuscitation and advanced cardiac life support when required,
- stabilize the patient,
- conduct a safe and timely transfer, and provide medical treatment until such transfer can be affected.

Chest Discomfort Syndromes and Treatment

Chronic Stable Angina Pectoris. Chronic stable angina pectoris consists of substernal chest discomfort which is produced by predictable amounts of exertion for each patient and is readily relieved by rest and/or sublingual nitroglycerin. Symptoms must have been intermittently present for a period exceeding 1 month. The discomfort may radiate to the neck, jaw, arms, or epigastrium. Occasionally, dyspnea, slight diaphoresis, and

palpitations are associated. The onset of discomfort is associated with a buildup over 1-3 minutes. Relief may be rapid, but is not instantaneous.

When a patient with such a symptom complex is identified, he should be placed on light duty and provided with sublingual nitroglycerin after being instructed in its use. The appropriate operational medical officer should carefully evaluate the patient shortly after presentation. Should a clinical history of chronic stable angina pectoris be confirmed, prophylactic therapy with long-acting oral nitrates may then be started. If in port the patient should then be referred expeditiously to the appropriate shore-based general internal medicine clinic or cardiology clinic. If such a patient first seeks medical attention while underway, he should be transferred to a vessel with a medical officer aboard or transferred ashore. Such dispositions should be preceded by communication with the receiving clinic whenever possible.

Unstable Angina Pectoris. Patients with unstable angina pectoris may be placed into three broad categories: (1) angina de novo, (2) deterioration in a

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previously stable anginal pattern, and (3) rest angina.(3)

Patients with angina de novo have a symptom complex similar to patients with chronic stable angina. These symptoms have been present, however, for less than 1 month. Management here is similar to that for patients with chronic stable angina, except that such patients should be admitted to sickbay and kept under medical observation until the appropriate disposition is made. Furthermore, activities should be limited to those necessary for daily living.

When angina pectoris occurs with increasing frequency and/or with decreasing amounts of exertion, a potentially more dangerous situation exist.(4) Optimal care in port dictates that such patients be transferred expeditiously to the nearest appropriate medical facility for further evaluation and treatment. When underway such patients should be placed in sickbay with marked activity restrictions. Mild sedation is indicated as well as prophylactic oral or cutaneous nitrate therapy.

When starting nitrate therapy the patient must be observed for possible hypotension and/or bradycardia which are treated by leg raising and reducing or discontinuing the medication, and, if necessary, intravenous fluids.(6) In addition, therapy with oral beta-blockers may be started when not contraindicated.(5) Such patients should be expeditiously transferred ashore. When this is not feasible, every effort should be made to insure that the patient is under the direct supervision of an attached medical officer. In any case, consultative liaison with the appropriate naval hospital medical or cardiology service is recommended.

The last subgroup of unstable angina consists of those patients who experience angina at rest. Although a few in this subgroup have primarily vasospastic disease, the majority have significant obstructive coronary artery disease (perhaps with superimposed spasm),(7) and are often at high risk of myocardial infarction.(4) If in port,

such patients should be transported expeditiously to the nearest appropriate hospital emergency room where admission for further evaluation and treatment should be anticipated. If underway, such patients should be admitted to sickbay, placed at bed rest, given low flow oxygen, and mildly sedated. Therapy with a long-acting nitrate preparation should be started. Episodes of chest discomfort should be treated with sublingual nitroglycerin as needed. The cognizant medical officer may elect to start oral beta-blocker therapy. Semi-emergent transfer to a shore-based facility is indicated unless the clinical situation improves dramatically with the above measures.

Prolonged Ischemic Chest Discomfort. Patients who experience more than 20-30 minutes of ischemic chest discomfort may well have suffered a myocardial infarction. Definitive diagnosis and treatment in this subgroup requires prompt admission to a CCU. When in port, such patients should be transferred immediately to the emergency room of the nearest appropriate medical facility via ambulance. Prior to transfer, oxygen administration should be started, an intravenous line should be placed, and continuous electrocardiographic monitoring should be started. Under the direction of a medical officer, prophylactic lidocaine may be administered according to Advanced Cardiac Life Support (ACLS) guidelines.(9) Pain relief should be attempted utilizing sublingual nitroglycerin and, when necessary, carefully titrated intravenous morphine sulfate. Should the patient sustain a cardiac arrest, cardiac life support should be initiated in accordance with Basic Cardiac Life Support (BCLS) and ACLS guidelines.(10)

Should a patient suffer a possible myocardial infarction while underway, significant delays may exist prior to the necessary emergent transfer to a shore-based CCU. Interim management requires bed rest, oxygen administration, continuous EKG monitoring (when available), pain relief, arrhyth-

mic prophylaxis, recognition and treatment of life-threatening arrhythmias, and appropriate treatment of major hemodynamic aberrations.(10) On many small ships, only bed rest, oxygen, pain relief, and (possibly) intravenous lidocaine prophylaxis are available. In this setting a medical officer should come on board as soon as possible, bringing along additional medications and monitoring-defibrillation equipment as needed. Since early mortality here is reduced by the effective diagnosis and treatment of lethal arrhythmias,(2) every effort should be made to provide continuous EKG monitoring by personnel schooled in the diagnosis and treatment of such arrhythmias. The patient should temporarily cease oral intake except for needed medications.

Medical Personnel Aboard Ship

Small ships have one independent duty corpsman and up to three additional hospital corpsmen. At least one of these individuals is usually qualified in BCLS. The independent duty corpsman may have attended an ACLS course. Medium size ships usually have one general medical officer and from three to six hospital corpsmen. The corpsmen are usually qualified in BCLS, and the medical officer is often qualified in ACLS. Large ships have a variable number of medical officers and a proportionately large complement of hospital corpsmen. Again, most members are qualified in BCLS, and at least one physician is usually qualified in ACLS. In view of the potential clinical problems, personnel may be limited. It is recommended that all medical officers become qualified in ACLS and that all hospital corpsmen become qualified in BCLS. Independent duty corpsmen should strive to gain familiarity with ACLS.

Material Resources

Medical spaces on board small ships are in short supply. Minimal to no laboratory facilities exist. Equipment for continuous EKG monitoring and defibrillation are often not imme-

diately available. Medications, as required by the Authorized Medical Allowance List, may not include all eight basic medications recommended by ACLS. A Lifepak-5, suitable for short term continuous EKG monitoring and defibrillation, is usually available. The basic cardiac medications are usually stocked but long-acting nitrates and beta-blockers must be purchased at the discretion of the medical officer. Large ships differ principally in that they have more bed space and may have intensive care spaces with EKG monitoring equipment and X-ray facilities.

Evacuations

Medical evacuations (medevac's) are an essential element in patient care aboard ship. It should be emphasized that a patient must be medically stabilized prior to transport via medevac since care delivery during such a transfer is often primitive. When a helicopter is used vital signs may be difficult to obtain. Since delays occur adequate extra medical supplies should be forwarded along with the patient. When a patient is being evacuated for significant ischemic heart disease, a medical officer, when possible, should accompany the patient.

The chain of command that must be followed to arrange for a medevac is outlined in an operational order (OPORD) that ships receive prior to deployment. For example, when oper-

ating with a squadron, the medical officer or independent duty corpsman with the patient would usually contact the squadron's senior medical officer who has three options: (1) offer consultation for further treatment, (2) go to the patient's ship to assist with further treatment, or (3) arrange a medevac either to his ship or ashore for further therapy. Implicit in the transport of a patient from one ship to another is the affirmative endorsement of both the commanding officer of the patient's ship and the commanding officer of the receiving ship. Should the senior medical officer recommend that the patient be transported to the nearest land-based medical facility, the senior medical officer, through his commanding officer, would contact the appropriate higher authority in the area of operations. Further arrangements would be made at this level. Early consultation with a naval hospital is encouraged when operational requirements permit.

Summary

Personnel and material resources necessary to provide advanced cardiac care cannot be made available in every operational setting. However, with wider dissemination of knowledge and skills as taught in the BCLS and ACLS programs plus the increased availability of EKG monitoring-defibrillation devices, improved care be given. Optimal care requires accurate patient

categorization, initial treatment, and timely disposition. The importance of early transfer of those patients exhibiting the more serious syndromes of ischemic chest discomfort cannot be overemphasized.

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Navy Surgeons to Meet

Navy surgeons will meet during the week of the Clinical Congress of the American College of Surgeons. A reception will be held 24 Oct 1984 from 1800 to 2000 at the Marines' Memorial Club, 609 Sutter Street, San Francisco, CA.

For more information write: CAPT R.R. Abbe, MC, USN, Chairman, Department of Surgery, Naval Hospital, Oakland, CA 94627.

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Medical Department Anniversary

The Navy Medical Department will celebrate the anniversary of their founding in 1842 by holding the annual ball 29 Sept 1984 at the Bethesda Officer's Club, located on the compound of the Naval Medical Command, National Capital Region, Bethesda, MD. All Medical Department officers, active, Reserve, and retired are invited.

This year's theme, "Naval Medical Command—Wartime Readiness and Peacetime Efficiency," highlights the department's commitment to providing quality medical care, whether it's needed on the battlefield, on the sea, or in a stateside hospital.

The uniform for military attendees is Dinner Dress, White Jacket, with optional Dinner Dress, White for lieutenants and below. Civilian attire is black tie.

Reservations are required. For information, call CAPT Dorothy Leonard, NC, at (202) 653-1105/autovon 294-1105.

U.S. NAVY MEDICINE